guiding air past the samples, and a damper **15** in a vent **25** on the cover **26** for the housing **20**.

As seen more clearly in FIGS. 3 and 4, the optical systems each have a screen **3** having a slit **3***a* therein, a lens **4** and a prism **5**. The condenser lens **2** and the cylinder **16** within which the optical system is contained are positioned so that the condenser lens **2** will focus light on the slit **3***a* in the screen **3**.

Adjacent the outer end of each of the cylinders **16** and slightly offset from the axis of the cylinder is a screening plate **19** having an adjustable slit **19***a* therein. Also provided as part of each of the first sample holding means **6** is a horizontal indicator frame **17** which has a horizontally elongated opening therein and markings thereon indicating the wavelength of light which strikes the sample at the various points along the length of the frame after the light has passed through the prism. As part of each of the second sample holding means **7** there is provided a vertical indicator frame **18** which has a vertically elongated opening therein and markings thereon indicating the wavelength of light which strikes the sample at the various points along the height of the frame after the light has passed through the prism.

In operation, if it is desired to test a sample for light fasteness for a particular range of wavelengths, the cylinder is rotated around its axis until it is in the FIG. 3 position, i.e. with the prism in a substantially vertical position with respect to the apparatus and with the screen **3** in a position such that the slit **3***a* therein is also in the vertical position. The sample is then positioned in the sample holding means **6** with the indicator frame **17** thereover, and the adjustable slit **19***a* in the screening plate **19** is narrowed until the light passed through it from the prism **5** corresponds to the desired range, as will be indicated on the indicator frame **17**. When the temperature and humidity conditions within the housing **20** have been brought into the proper range by the operation of the blower **12** and damper **15** and the humidifier means **11**, the lamp **1** is operated. A beam of light will pass through the vertical slit **3***a* in the screen **3**, be refracted and dispersed by the prism **5** and will fall on the sample with the light of various wavelengths at different positions along the length of the opening in the frame **17**. By driving the drum **22** at a uniform speed, the entire sample exposed through the frame **17** will receive light over the particular range or wavelengths passing through the screen for the same length of time.

Because any prism can very slightly from the ideal, it is desirable to have a plurality of prisms all with about the same characteristics and to move the sample past a succession of prisms in the successive optical systems. This reduces the effect of variations in any one prism on the overall exposure. However, where it is desired to expose the sample to a combination of ranges of wavelengths or particular wavelengths of light which cannot be produced by narrowing the opening in screen **19** to control light from a single prism, then the successive screens can be set so that the range of wavelengths passed by each is different, and rotation of the drum **22** will move the sample first through the beam having one range of wavelengths, and then through a second beam having a different range of wavelengths, and so on until the sum total of exposures gives the desired exposure conditions.

If it is desired to get a comparison of the effects of the different wavelengths of light on a single sample, the cylinders **16** are rotated to the FIG. 4 position in which the prism **5** is horizontal and the slit **3***a* in the screen **3** is horizontal. The sample is then placed in the sample holding means **7** and the frame **18** placed over it. The beam of light will then be refracted downwardly by the prism, and the light of various wavelengths at different positions along the height of the opening in the frame **18**. Thus, each part of the sample will be exposed to light of only one wavelength during its passage past the opening in the frame **18**. As with the method of operating the apparatus with the cylinders **16** in the FIG. 3 position, it is well to provide a plurality of similar prisms so that the effect of irregularities can be compensated for.

It is thought that the invention and its advantages will be understood from the foregoing description and it is apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing its material advantages, the form hereinbefore described and illustrated in the drawings being merely a preferred embodiment thereof.

I claim:

1. An apparatus for exposing samples to light of various wavelengths, comprising a source of light similar to natural solar radiation, at least one optical system positioned in the path of light from said source of light for forming a narrow beam of light and including a prism for refraction and dispersion of the light into distinct wavelength bands, a screen having an adjustable width slit therein adjacent the other end of the optical system from the source of light and positioned to transmit selected bands of the light dispersed by said prism, rotating means on which at least said prism is mounted for rotation in the path of light, a first sample holder having an elongated slit therein through which material to be tested can be exposed, a second sample holder having an elongated slit therein substantially perpendicular to the slit in said first sample holder through which material to be tested can be exposed, and moving means on which said sample holders are mounted for moving the sample holders in a scanning movement completely through the beam of light dispersed by the prism in a direction transverse to the light emitted through the optical system, said moving means moving the first sample holder past the end of the optical system on a path to receive light directly from the prism on the opposite side of the screen from the optical system when the system is in a first position and moving the second sample holder past the end of the optical system on a path to receive light directly from the prism when the prism is rotated 90° from said first position.

2. An apparatus for exposing samples to light of various wavelengths, comprising a source of light similar to natural solar radiation, at least one optical system positioned in the path of light from said source of light for forming a narrow beam of light and including a prism for refraction and dispersion of the light into distinct wavelength bands, a screen having an adjustable width slit therein adjacent the other end of the optical system from the source of light and positioned to transmit selected bands of the light dispersed by said prism, rotating means on which at least said prism is mounted for rotation in the path of light, a first sample holder having an elongated slit therein through which material to be tested can be exposed, a second sample holder having an elongated slit therein substantially perpendicular to the slit in said first sample holder through which material to be tested can be exposed, and moving means on which said sample holders are mounted for moving the sample holders in a scanning movement completely through the beam of light dispersed by the prism in a direction transverse to the light emitted through the optical system, said moving means moving the first sample holder past the end of the optical system on a path to receive light diretcly from the prism on the opposite side of the screen from the optical system when the system is in a first position and moving the second sample holder past the end of the optical system on a path to receive light directly from the prism when the prism is rotated 90° from said first position, and temperature and humidity creating and control means mounted in said enclosure for establishing and maintaining predetermined temperature and humidity condition in said enclosure.

3. An apparatus for exposing samples to light of various wavelengths, comprising a source of light similar to natural solar radiation, at least one optical system posi-